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Experiences of dentistry interns during the COVID-19 pandemic

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ABSTRACT

Aims: This study was undertaken to explore the effects of the pandemic period for students in the 4th and 5th years of a dentistry program who were completing internships through the Dicle University Faculty of Dentistry in terms of their health, education, and socioeconomic status.

Methods: For this study, a total of 200 voluntary participants completing internships in the 4th or 5th year of enrollment in the Dicle University Faculty of Dentistry were asked to fill out a questionnaire that was created with the aim of understanding the effects of the COVID-19 pandemic on interns in terms of education, health, transportation, and socioeconomic status. In the statistical analysis of the survey data, a frequency distribution table was created for general characteristics and the chi-square test was applied to compare the obtained answers. Confidence intervals were evaluated at 95% and the significance value was accepted as 5%.

Results: The overwhelming majority of the participants reported that the pandemic affected their general health, and almost all of them reported that they were worried about the future and that the COVID-19 pandemic had reduced the quality of their education and their academic motivation. More than half of the participants stated that they were adversely affected by online education and that they had difficulties in terms of transportation while continuing their internships during the pandemic. It was also determined that a relative or acquaintance of nearly all of the participants had been diagnosed with COVID-19, and nearly half of the participants lost a relative or acquaintance due to COVID-19.

Conclusion: This study has revealed that dentistry students were negatively impacted by the COVID-19 pandemic to a larger extent than expected, with serious consequences for their mental health, hopes for the future, and general enjoyment of life. We conclude that it is important to provide regular psychological support, academic assistance, and motivational programs for dentistry students, as well as support for all healthcare professionals in general, in order to prevent the problems that arose from the pandemic from becoming permanent.

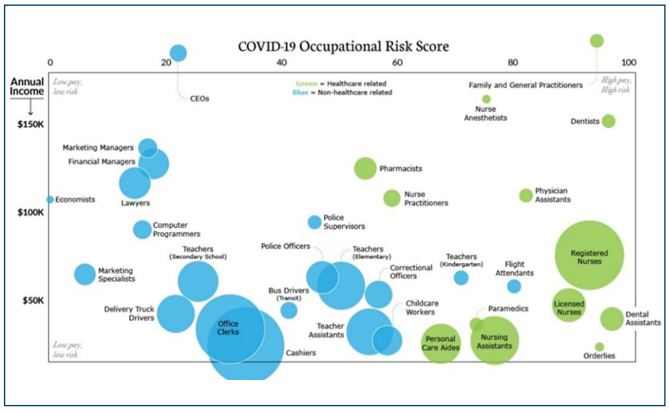
Keywords: COVID-19, pandemic, dentistry student, online education

INTRODUCTION

Past epidemics such as SARS and Ebola caused serious health problems resulting in many deaths. However, they also provided valuable experience and knowledge to be applied during the COVID-19 pandemic together with the development of many vaccines in a short period of time.[1-4]

Although progress has been made in the field of medicine since the beginning of the COVID-19 pandemic, social and economic recovery has not shown the same momentum, and the conditions of the pandemic made it difficult for people to maintain their economic well-being or access education and health services.[4]

It is thought that dentists have been particularly negatively impacted by the COVID-19 pandemic, as they work in constant exposure to respiratory aerosols as the main source of the spread of COVID-19, and they are also in direct contact with the oral flora of their patients for long periods of time.[5] It can reasonably be assumed that dentistry students who are still continuing their educations have been similarly adversely affected by the pandemic (**Picture 1**).[9]



Picture 1: COVID-19 occupational risk score (9)

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For this reason, personal precautions such as the use of N95 masks, face shields or protective glasses, gloves, hair bonnets, and other protective clothing have been of utmost importance since the beginning of the pandemic, especially for dentists and dentistry students.[5-8] This has meant that a new chain of procedures needed to be developed, especially for students and interns. This has complicated the working conditions in the field of dentistry, and the limitations imposed on the use of air conditioners during the pandemic and the admission of patients into small rooms with HEPA filters may aggravate preexisting medical conditions.[8]

The COVID-19 pandemic quickly became a worldwide crisis on a general scale, and it has also caused various challenges for education, including unique problems for dentistry faculties.[10] In Turkey, students are referred to as "trainee dentists" in the 4th and 5th years of their university education within the scope of the standard 5-year dental education program, and they receive clinical training that requires one-on-one contact with patients. The word "intern" entered Turkish from French to describe individuals engaged in an apprenticeship or trial phase, and this word is also used to describe students in the 4th and 5th years of dentistry education.

Due to the fact that these trainee dentistry students are in contact with patients and participate in rotation programs, clinical internship procedures make students potential vectors in the spread of COVID-19.[10]

For these and other similar reasons, practical education in the field of dentistry was suspended at the beginning of the pandemic with the aim of avoiding the risk of transmission. Accordingly, the pandemic posed significant educational challenges for trainee dentistry students.[11]

In order to reduce the spread of the virus, it was recommended that all educational institutions, including dental faculties, be temporarily closed around the world, including Turkey.[11,12] All educational institutions in Turkey were temporarily closed as of March 25, 2020, in line with those recommendations.[13] That temporary complete closure was followed by a period of online education, defined as a computer-assisted learning model that may include only online learning or a mix of online and offline education.[14] Although it offers advantages such as instant feedback from students and reduced costs, it is frequently stated by educators that online learning is not an effective substitute for face-to-face education.[14]

In the present study, the difficulties experienced by students in the 4th and 5th years of a dentistry program who were completing internships through the Dicle University Faculty of Dentistry during the pandemic, their perspectives on the education they received, and the changes in their emotions and thoughts are evaluated. The null hypothesis of the research was that the COVID-19 pandemic did not cause changes in the lives of interns from a dentistry program.

METHODS

Participants were informed about the purpose of the study and their consent was obtained by paying attention to the principle of voluntariness. In addition, it was ensured that the information about the participants was kept confidential. The study was approved by the Dicle University Faculty of Dentistry Ethics Committee (Date: 2021; Decision No: 2021/34). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

For this study, a total of 200 voluntary participants completing internships in the 4th or 5th year of enrollment in the Dicle University Faculty of Dentistry were asked to fill out a questionnaire that was created with the aim of understanding the effects of the COVID-19 pandemic on interns in terms of education, health, transportation, and socioeconomic status.

The questionnaire also contained questions intended to collect descriptive information about the participants and multiple-choice questions regarding the impact of COVID-19 in their lives.

Statistical Analysis

Frequency distribution table was created for general features. Chi-square test was applied to compare the answers given to the general features, which are categorical variables, and the questions with categorical data. The confidence interval was 95% and the significance value was evaluated as 5%.

RESULTS

The participants in the study were 46.5% female, 53.5% male, 47.5% 4th grade and 52.5% 5th grade students. 19.5% of them have a health problem, 12% of them constantly use drugs, and 90% of them think that the pandemic process affects their general health.

90% of them had a relative/acquaintance diagnosed with COVID-19 disease, 47.5% of them lost a relative/acquaintance due to COVID-19 disease, and 18% of them contracted COVID-19 disease. It was observed that 1.5% spent the process in the hospital (inpatient).

When asked "What is your most important source of information about the COVID-19 pandemic", 6.5% of the participants answered family environment/relative/friend, 2% school/university, 37% social media, 42% internet (following the pages of the Ministry of Health, etc.), 8.5% television/radio, 2% seminar/congress, and 2% no answer.There was a statistically significant relationship between gender and participants' responses to "What is your most important source of information about the COVID-19 pandemic" ($p<0.05$). While female interns mainly obtain information via the internet (following the pages of the Ministry of Health, etc.); male interns mostly prefer social media.

When asked "How would you evaluate your psychology during the pandemic period?", 12.5% of the participants answered "I enjoy many things as much as I used to", 25.5% "I can't enjoy many things like I used to", and 34% "Nothing gives me complete pleasure anymore" and 28% "I'm bored of everything". 95% of participants reported worrying about the future, 6.5% of them received psychological support, and 8.5% reported taking antipsychotic/antidepressant medication. In addition, 98.5% of participants reported that COVID -19 affected their quality of educational life, while 95.5% reported that the COVID -19 pandemic decreased their academic motivation.

When asked "What is the reason that most diminishes your academic motivation?", 46.5% of participants answered "Anxiety about the future", 27.5% "Changing the way of education (Face to Face/Online)", 12% "Fear of catching COVID-19", 7% "Inability to meet the need for socialization", 3% "Inability to meet physical activity needs". The rate of participants who reported that my academic motivation was not affected during the COVID-19 period was 4%.

Table 1. Distribution of participants' levels of being affected by the outbreak from COVID -19

		n	%
Gender	Female	93	46.5
	Male	107	53.5
Class	4th grade	95	47.5
	5th grade	105	52.5
Do you have any health problems? (Cardiovascular, Diabetes, Respiratory Problems, Psychological Disorders etc.)	Yes	39	19.5
	No	161	80.5
Do you have a regular medication?	Yes	24	12.0
	No	176	88.0
Do you think the pandemic process is affected your overall health?	Yes	180	90.0
	No	20	10.0
Have you ever had a relative/acquaintance diagnosed with COVID-19 disease?	Yes	180	90.0
	No	20	10.0
Have you lost a relative/acquaintance due to COVID-19 disease?	Yes	95	47.5
	No	105	52.5
Have you caught the COVID-19 disease?	Yes	36	18.0
	No	164	82.0
If you have been infected with COVID-19 disease, where did you spend the treatment process?	At Home (Standing)	32	16.0
	In the Hospital (Inpatient)	3	1.5
	I did not have COVID-19.	165	82.5
What is your most important source of information about the COVID-19 pandemic?	Family/ Relative/ Friend	13	6.5
	School/ University	4	2.0
	Social media	74	37.0
	Internet (following the pages of the Ministry of Health, etc.)	84	42.0
	Television/ Radio	17	8.5
	Seminar/ Congress	4	2.0
	None	4	2.0
How would you evaluate your psychology during the pandemic period?	I enjoy many things as much as I used to.	25	12.5
	I can't enjoy many things like I used to.	51	25.5
	Nothing gives me complete pleasure anymore.	68	34.0
	I'm bored of everything.	56	28.0
Did you receive psychological support during this period?	Yes	13	6.5
	No	187	93.5
Did you take antipsychotics/antidepressants etc. medication during this time?	Yes	17	8.5
	No	183	91.5
Are you worried about the future?	Yes	190	95.0
	No	10	5.0
Do you think COVID-19 has affected the quality of your educational life?	Yes	197	98.5
	No	3	1.5
Do you think the COVID-19 pandemic has reduced your academic motivation?	Yes	191	95.5
	No	9	4.5
If so, what is the reason that most diminishes your academic motivation?	Inability to meet the need for socialization	14	7.0
	Anxiety about the future	93	46.5
	Inability to meet physical activity needs	6	3.0
	Fear of catching COVID-19	24	12.0
	Changing the way of education (Face to Face/Online)	55	27.5
	My academic motivation was not affected during this period.	8	4.0
How has online education affected your life?	Overall, it had negative effects.	120	60.0
	Overall it had positive effects.	45	22.5
	It had no effect.	35	17.5
Does continuing your internships during the pandemic process create difficulties in terms of transportation?	Yes	131	65.5
	No	69	34.5
Are you worried about taking care of active patients during the pandemic period?	Yes	130	65.0
	No	70	35.0
Do you feel safe in terms of COVID-19 while caring for active patients?	Yes	41	20.5
	No	159	79.5
Has the COVID-19 pandemic caused financial difficulties to meet your internship training needs? (Aerator, micromotor, consumables, etc.)	Yes	183	91.5
	No	17	8.5
Has the COVID-19 pandemic process affect your perspective towards the dentistry profession?	It affected positively.	15	7.5
	It affected adversely.	115	57.5
	It did not affect.	70	35.0
Total		200	100.0

When students' perspectives on the dentistry profession were examined during the COVID-19 pandemic, it was found that 7.5% were positively affected, 57.5% were negatively affected, and 35% were not. When asked about the effects of online education on their lives, 60% of participants answered "Overall, it had negative effects", 22.5% "Overall it had positive effects", and 17.5% "It had no effect".

65.5% of participants had difficulties in transportation while continuing their internship during the pandemic process, 65% were worried about taking care of active patients during the pandemic period, 20.5% felt safe in terms of COVID-19 while caring for active patients. In addition, 91.5% of participants reported financial difficulties to meet their internship training needs during the COVID-19 epidemic.

There was no statistically significant relationship between the status of taking medication, the effects of COVID-19 on the quality of their education life, thinking that it reduces their academic motivation, creating economic difficulties to meet their needs for internship education, affecting their perspectives towards the dentistry profession, and their perspective on online education ($p > 0.05$).

There was statistically significant relationship between class of the participants and the difficulties in transportation during the pandemic process, worry about caring for active patients, and feeling safe in terms of COVID-19 while looking at a patient, but these findings were not related to gender.

There is significant relationship between the participants' state of having any health problems and worry about looking after active patients during the pandemic period ($p<0.05$). It was determined that there was no significant relationship between the presence of a health problem and catching the COVID-19 disease ($p>0.05$).

In COVID-19 period, no significant relationship was found between the loss of a relative/acquaintance due to COVID-19 and psychological evaluations, such as receiving psychological support and use of drugs (antipsychotics/antidepressants etc) ($p>0.05$). A statistically significant relationship was determined between losing a close/acquaintance due to COVID-19 and anxiety about the future ($p<0.05$).

There was significant relationship between the participants' cases of contracting the COVID-19 disease and their evaluation of psychology during the pandemic period and their anxiety about the future ($p<0.05$). There was no significant relationship between taking medication, being uneasy about looking at active patients during the pandemic period, and thinking that it reduces their academic motivation ($p>0.05$).

DISCUSSION

COVID-19, as one of the most significant pandemics to affect the entire world, has also caused changes in the feelings and thoughts of individuals. This pandemic has had significant effects such as stress, fear, and anxiety among people working in the fields of health and education and it has affected their psychology in the workplace.[5]

Dentists constitute one of the occupational groups most affected by this pandemic, and students enrolled in faculties of dentistry are located at the intersection of the field of health and the field of education due to the clinical and theoretical training that they receive. As COVID-19 can be transmitted through saliva and aerosols, it directly affects dentistry students who are beginning to gain experience in working in direct contact with patients.[5]

In this study, which was conducted with students in the 4th and 5th years of the dentistry education program of the Dicle University Faculty of Dentistry and were thus completing internships based on practical training, the difficulties experienced by the students during the pandemic, their perspectives on the education they received, and the changes in their emotions and thoughts during that period were evaluated. Due to the continuation of both distance education and the pandemic at the time of the research, the questionnaire was administered online. As the study only included students completing internships in the Dicle University Faculty of Dentistry, participation was limited to 200 people.

The questions were designed with the aim of revealing the level of exposure of the participants to COVID-19. Among the interns who participated in our study, 90% reported that the pandemic had affected their general health, and only 16% stated that they still enjoyed many things as much as they had before the pandemic. These respective high and low percentages suggest that the pandemic has had a seriously negative impact on students.

In our study, it was found that intern dentistry students in the 4th year of the program were less nervous about actively caring for patients during the pandemic compared to students in the 5th year of the program, and they also felt more safe in terms of COVID-19 while actively working with patients. Participants were specifically asked if they were worried about taking care of active patients during the pandemic period. While 80% of the students in the 5th year of the program replied positively to this question, only about half of the students in the 4th year said "yes." When specifically asked if they felt safe in terms of COVID-19 while actively caring for patients, 95% of the students in the 5th year of the program said "no," while 64% of the students in the 4th year said "no." We postuled that these findings are due to the fact that students in the 5th year had gained more knowledge and experience and could predict possible risks better than those in the 4th year of the program.

It was found that 82.1% of the students who stated that they were anxious about actively caring for patients during the pandemic had preexisting health problems. Thus, among our participants, individuals with health problems were more anxious than others about the transmission of COVID-19.

According to the data obtained in this study, there was no relationship between participants having any previous health problems and contracting COVID-19. Based on this finding, it can be said that the participants' preexisting health problems were generally not diseases considered as predisposing risk factors for COVID-19.

Considering that COVID-19 is spread via transmission routes that include aerosols, saliva, and sneezing, it is clear that dentists are among the high-risk professional groups. Dentists who are in direct contact with patients during a pandemic may experience psychological problems such as fears of infecting their families, friends, and other patients, as well as stress and anxiety about contracting the virus.[15,16] Wang et al.[17] reported that healthcare professionals experienced more stress during epidemic periods. In a similar study, Lu et al.[18] from the end of sentence reported that healthcare professionals exposed to high aerosol concentrations experience have more psychological problems such as anxiety than those working in an aerosol-free environment.

Dentists face risks of harm to both their physical health and mental health while working during a pandemic. While dentists have participated in previous studies of the effects of the COVID-19 pandemic among different professional groups, there have not been sufficient studies on the experiences of interns or dentistry students working in similar environments during the pandemic.

Among our participants who contracted COVID-19, 72.2% stated that they could no longer enjoy anything as much as they used to and that they were bored, 5.6% received psychological support, and 5.6% reported using antipsychotics, antidepressants, or other similar drugs. On the other hand, 75% of our participants who contracted the virus were worried about actively caring for patients, 94.4% felt that their academic motivation had decreased, and 86.1% were worried about the future. Thus, our study has revealed that the general health, psychology, educational life, and future thoughts of students who contracted COVID-19 were adversely affected.

It was seen that the quality of education of 98.5% of all students participating in our study was negatively affected during the pandemic and the academic motivation of 95.5% of all participants decreased. It is particularly unfortunate that the intern students in the 4th year of the program, who were receiving practical training with patients for the first time, stated that the quality of their education was affected. It was observed that the transition to online education had a negative impact on the lives of students.

The reason for decreased academic motivation was said to be the transition of education from the classic face-to-face system to online education by 27.5% of the participants, which suggests that students do not benefit efficiently from this system. When previous studies in the literature are examined, claims that online education cannot replace face-to-face education are dominant.[19,20]

A study conducted by Tunç et al.[21] assessed dentists' knowledge level of COVID-19 infection and found that physicians were most obtained information of the epidemic through Ministry of Health follow-up and that social media/Internet was the second most frequently cited source. We also asked our participants: "What is your most important source of information about the COVID-19 pandemic?" Students stated that they obtained information from the webpages of the Ministry of Health, followed by social media. Students obtaining information from the school/university were fewest in number. We attribute this finding to the closure of educational institutions such as universities during the course of the pandemic. However, a similar study among dental students in Nigeria showed that most information about COVID-19 was obtained through social media.[22] Kara et al.[23] examined the impact of the COVID-19 epidemic on dental student education and reported that the most common source of information was social media. In light of this literature, we attribute it the fact that young people's use social media for information purposes and more actively.

When students were asked if continuing their internships created difficulties in terms of transportation during the pandemic, 65.5% of the participants responded positively. It was seen that students in the 5th year answered "yes" more to this question than those in the 4th year. The curriculum for the 5th year of the dentistry program includes a longer internship and the frequency of coming to school is thus different; this may have been why students in the 5th year had more difficulties than those in the 4th year. Since Dicle University receives many students from the surrounding districts, a significant part of the students' time is devoted to commuting. The fact that 65.5% of the students reported transportation difficulties also suggests that pandemic-related factors such as restrictions on public transportation during the pandemic, travel restrictions between provinces, and scientific explanations about the spread of the virus in public transit environments made transportation more difficult and worrying for the students.

The overwhelming majority of the students (91.5%) stated that the COVID-19 pandemic created economic difficulties as they worked to complete their internships. In the course of the pandemic in Turkey, restrictions were imposed on both domestic travel and foreign entries and exits. The difficulties experienced by the students in this dimension included the increasing costs of imported hand tools required for dentistry work and the difficulty of accessing such tools due to the closure of dental and medical facilities. At the same time, we can also attribute these difficulties to the fact that some of the students' families experienced economic difficulties triggered by the loss of jobs.

The data we obtained in our study show that the Covid-19 pandemic process negatively affects students not only in terms of mental and physical health, but also in terms of economy and transportation.

Students were also asked the following question: "Has the COVID-19 pandemic affected your perspective on the dentistry profession?" While 57.5% of the students stated that their perspectives had been negatively affected, 35% stated that they were not. We found that 61.6% of the students who were negatively affected answered that they did not feel safe in terms of COVID-19 while caring at active patients. We attribute this situation to the fact that students' perspectives of the profession have changed due to their fear of getting sick.

It was observed that students who lost a relative or acquaintance to COVID-19 had more intense anxiety about the future ($p<0.05$). Students who contracted COVID-19 themselves also experienced more intense anxiety about the future. In light of all of these findings, the null hypothesis of the study was rejected and it was concluded that the COVID-19 pandemic negatively affected dentistry interns more than we initially expected.

CONCLUSION

This study has revealed that dentistry students were negatively impacted by the COVID-19 pandemic to a larger extent than expected, with serious consequences for their mental health, hopes for the future, and general enjoyment of life. We conclude that it is important to provide regular psychological support, academic assistance, and motivational programs for dentistry students, as well as support for all healthcare professionals in general, in order to prevent the problems that arose from the pandemic from becoming permanent.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was approved by the Dicle University Faculty of Dentistry Ethics Committee (Date: 2021; Decision No: 2021/34).

Informed Consent: Participants were informed about the purpose of the study and their consent was obtained by paying attention to the principle of voluntariness. In addition, it was ensured that the information about the participants was kept confidential.

Referee Evaluation Process: Externally peer-reviewed.

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